

Migrated Biliary Stent Presenting as a Sigmoid Diverticulitis—Case Report

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Abstract This is a case report of a patient with biliary stent migration resulting in sigmoid diverticulum perforation. We report the case of a patient who presented with symptoms of diverticulitis 18 months following biliary stent insertion for bile leak following laparoscopic cholecystectomy. This rare complication of biliary stent placement should be included in differential diagnosis of any patient that presents with lower quadrant abdominal pain after endoscopic retrograde cholangiopancreatography (ERCP) with stent placement.

Keywords Biliary stent migration · Sigmoid perforation · Hartmann's procedure

Introduction

Biliary stents are used in the management of bile duct injury and bile leak following laparoscopic cholecystectomy. Removal of the biliary stent is advocated once the injury/complication has been treated (usually within 3 months) to avoid any complication caused by migration of the stent. Migration of the stent can result in the stent passing spontaneously

through the gastrointestinal tract without any resultant injury or result in complications such as small bowel perforation and abscess formation. Colonic perforation caused by biliary stent migration is rare. Although cases of colonic perforation have been reported [1–4], to our knowledge this is the first reported case in the literature of a patient with transluminal biliary stent injury to the colon presenting with symptoms of diverticulitis.

Case Report

A 58-year-old woman presented with left-sided abdominal pain, anorexia, and loss of weight for 3 weeks. At the time of admission, she had tenderness in the LIF, pyrexia, and tachycardia associated with guarding. She was treated as diverticulitis and was started on intravenous antibiotics as her inflammatory markers were raised. The patient had undergone a laparoscopic cholecystectomy 18 months prior to her presentation which was complicated by bile leakage. Endoscopic retrograde cholangiopancreatography (ERCP) and insertion of a plastic biliary stent was performed to treat the leak. The biliary stent was subsequently not identified and was thought to have passed through the gastrointestinal tract spontaneously.

The patient developed diarrhea following admission. Ultrasound of the abdomen showed evidence of thickening of the left colon with pericolic phlegmon and small flecks of gas. No abscess was identified. The patient was treated conservatively. Her clinical condition improved and she was discharged. An outpatient flexible sigmoidoscopy was arranged.

Flexible sigmoidoscopy showed inflammation of the distal sigmoid, and the endoscopist was unable to intubate the proximal sigmoid colon due to spasm. The patient was reviewed in the outpatient department where she continued complaint diarrhea. A contrast-enhanced CT scan of her

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abdomen showed that the stent was partially extraluminal in the region of the sigmoid colon and was associated with abscess formation.

Due to the patient's continuing symptoms and evidence of abscess formation and the presence of an extraluminal stent on CT scan, an elective laparotomy was planned. Laparotomy was difficult due to the presence of adhesions. The stent was visible in the peritoneal cavity having perforated full thickness through the sigmoid colon (Fig. 1). A Hartmann's procedure was performed. The patient made an uneventful postoperative recovery.

Discussion

Endoscopic treatment of biliary leaks following cholecystectomy by the placement of biliary stents is a well-established procedure. Sometimes the original stent which has been placed in the bile duct cannot be retrieved at subsequent ERCP. In these cases a colonoscopy has been advocated to retrieve the biliary stent [5, 6]. Identification of the biliary stent prior to retrieval may be done by using plain abdominal radiographs. Metallic biliary stents can be easily identified on plain X-rays. Conventional plastic stents which are made of polyethylene, polyurethane, or Teflon cannot be visualized radiologically unless they have radio-opaque markers incorporated into their ends. Polymeric stents are available in different sizes (7–12 Fr) and in different lengths (5–18 cm). Anchoring flaps are provided at the end of the stents to prevent migration distally. Migration can happen despite the presence of anchoring flaps.

Increasing use of the biliary stent in patients with both benign and malignant diseases may result in more patients presenting with complications to the gastrointestinal tract caused by the effect of migration of biliary stents. Review of the patient's history along with a high index of suspicion should lead the attending medical team to perform inves-



Fig. 1 Resected segment of the bowel with the migrated stent

tigations tailored to the symptoms. This should help to identify those patients who may need surgical intervention.

Surgical intervention may be preceded by an attempt to retrieve the stent by endoscopic means. Iatrogenic injury to the gastrointestinal tract may happen during endoscopic retrieval of the stent. Failure to retrieve the device will necessitate surgical intervention which is usually in the form of a laparotomy with an attempt to locate the stent intraoperatively. Although there are no reports in the literature, it may be technically possible to identify a stent situated within the colon by using table colonoscopy and subsequently retrieving the stent by performing a colotomy. This will avoid the need for an extensive procedure.

Diller et al. recommend early operative intervention to retrieve the stent if conservative measures and endoscopic means of retrieval fail [7]. They advocate that patients who become symptomatic should have surgery within 24 h of onset of symptoms. This is debatable as symptoms associated with migration of the stent are usually nonspecific. We recommend that progression or persistence of symptoms combined with radiological evidence of stent migration should prompt surgical intervention in these patients.

Our case is unique as the stent was found to be lodged within a sigmoid diverticula and it appears that chronic inflammation caused sigmoid perforation. Biliary stent migration complicated by sigmoid colon perforation is a rare event that should be included on the differential during workup for lower quadrant abdominal pain after ERCP with stent placement. In addition, if the perforation is contained with healthy uninflamed margins after sigmoid colectomy, a primary anastomosis is a reasonable treatment option.

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